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Wetlands Research Program Technical Report WRP-SM-2

Bibliography of Remote Sensing Techniques Used in Wetland Research

by Janet L. Lampman

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The following two letters used as part of the number designating technical reports of research published under the Wetlands Research Program identify the area under which the report was prepared:

	<u>Task</u>		<u>Task</u>
CP	Critical Processes	RE	Restoration & Establishment
DE	Delineation & Evaluation	SM	Stewardship & Management

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Bibliography of Remote Sensing Techniques Used in Wetland Research

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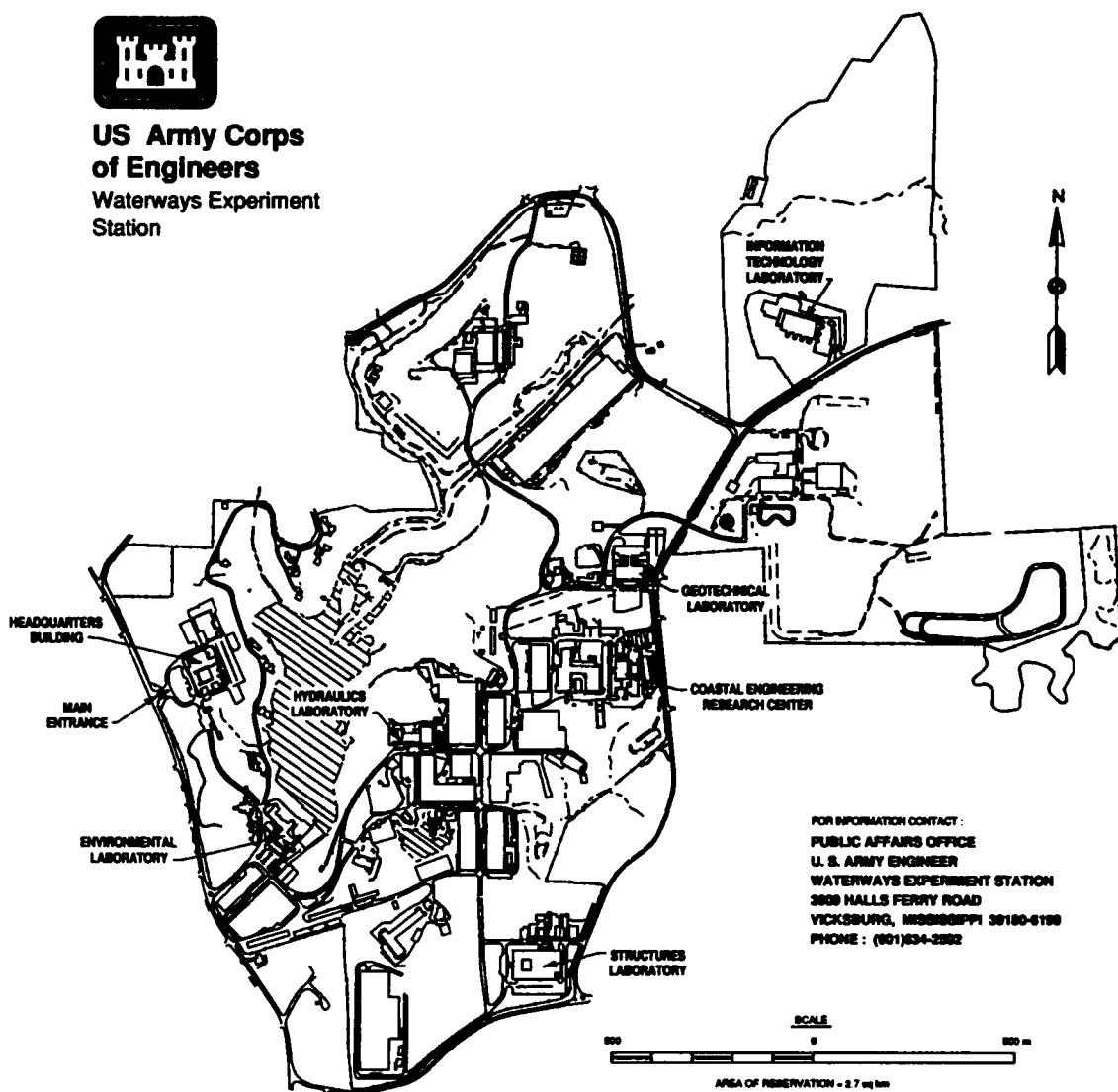
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Remote Sensing Applications for Wetlands

Bibliography of Remote Sensing Techniques Used in Wetland Research (TR WRP-SM-2)

ISSUE:

Remote sensing techniques have proven to be cost-effective methods for inventorying the present condition of a wetland, and for detecting changes in a wetland using historical remote sensing data. The extensive research conducted in this area is valuable when remote sensing applications are being considered for use in further wetland research.

RESEARCH:

The Bibliography of Remote Sensing Techniques Used in Wetland Research provides listings of some of the published works available for reference. This bibliographical search was conducted as part of a WRP work unit on characterizing changes to wetlands. The results were used to guide research efforts on the use of remote sensing technology for wetland change detection and assessment.

SUMMARY:

The bibliography will aid in literature reviews conducted on the past uses of remote sensing techniques in wetland research. All of the citations are in three listings organized by wetland type, sensor type, and author.

AVAILABILITY OF REPORT:

The report is available on Interlibrary Loan Service from the U.S. Army Engineer Waterways Experiment Station (USAEWES) Library, telephone (601) 634-2355.

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About the Author:

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Preface

The work described in this report was authorized by the Headquarters, U.S. Army Corps of Engineers (HQUSACE), as part of the Stewardship and Management Task Area of the Wetlands Research Program (WRP). The work was performed under Work Unit 32762, "Techniques for Characterizing Changes to Wetlands." Principal Investigator was Mr. Mark R. Graves of the Environmental Laboratory (EL), U.S. Army Engineer Waterways Experiment Station (WES). Ms. Denise White (CECW-ON) was the HQUSACE WRP Technical Monitor for this work.

Mr. Jesse A. Pfeiffer, Jr. (CERD-C), was the WRP Coordinator at the Directorate of Research and Development, HQUSACE; Dr. William L. Klesch (CECW-PO) served as the WRP Technical Monitor's Representative; Dr. Russell F. Theriot, WES, was the Wetlands Program Manager. Mr. James W. Teaford, Wetlands Branch, EL, was the Task Area Manager.

This report was prepared by Ms. Janet L. Lampman, under the general supervision of Mr. H. Wade West, Chief, Environmental Characterization Branch, Mr. J. L. Decell, Acting Chief, Natural Resources Division, and Dr. John Harrison, Director, EL, and under the direct supervision of Dr. M. Rose Kress.

At the time of publication of this report, Director of WES was Dr. Robert W. Whalin. Commander was COL Leonard G. Hassell, EN.

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1 Introduction

The Wetlands Research Program (WRP) is a critical part of the U.S. Army Corps of Engineers' commitment to wetland research. The WRP is divided into five task areas, each with its own specific mission in an important part of wetland research. A work unit under the Stewardship and Management Task Area, "Techniques for Characterizing Changes to Wetlands," is investigating the application of remote sensing technology for detecting changes in wetland environments.

This report documents a bibliographical search conducted as part of the "Techniques for Characterizing Changes to Wetlands" work unit on applications of remote sensing techniques in wetland research. The search was conducted as the initial step in examining the evolution of this technology in terms of sensor and platform development and the refinement of data processing and analysis techniques. It is a nonexhaustive search of publications from 1968 to 1990. Results were used to guide research efforts on the use of remote sensing technology for wetland change detection and assessment. The search was conducted through the WES Research Library.

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2 Bibliography Organization

The citations are presented in three appendixes. Appendix A organizes citations by the following wetland types: (1) tidal salt marsh; (2) tidal freshwater marsh; (3) mangrove; (4) inland freshwater marsh; (5) northern peatland; (6) southern deepwater swamp; (7) riparian wetlands;¹ (8) submerged aquatic vegetation; (9) regional wetland mapping; and (10) general information. Citations that could not be categorized based on the available information were placed in the group "Unknown Wetland Type."

Appendix B groups the citations by sensor type: (1) black-and-white photography; (2) true-color photography; (3) false-color infrared photography; (4) Landsat Multispectral Scanner (MSS); (5) Landsat Thematic Mapper (TM); (6) Satellite Pour l'Observation de la Terre (SPOT); (7) radar; (8) aircraft multispectral; (9) ground-based radiometer; (10) general information; and (11) other. Citations that could not be categorized based on the available information were placed in the group "Unknown Sensor Type."

Appendix C organizes the citations alphabetically by author. Within Appendixes A and B, a citation may appear in more than one category. The numbers of citations in each category in each appendix are summarized in Table 1.

¹ Mitsch, W. J., and Gosselink, J. G. 1986. *Wetlands*. Van Nostrand Reinhold, New York.

Table 1
Number of Citations by Category

Category	Number of Citations
Appendix A—Wetland Types	
Tidal salt marsh	154
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Appendix A

Citations Organized by Wetland Type

Tidal Salt Marsh

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Appendix B

Citations Organized by Sensor Type

Black-and-White Photography

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